

## ABSTRACT

Methods, systems and apparatus, including computer program products, for operating a quadrupole ion trap in mass spectrometry. A calibrated resonant frequency is determined for precursor ions in a first ion population in an ion trap. A frequency adjustment is determined for the precursor ions in a second ion population based on the number of ions in the second ion population. The ion trap is operated using an adjusted resonant frequency that is based on the calibrated resonant frequency and the determined frequency adjustment.

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